

STS-94



On-orbit: Mission Specialist Don Thomas works with the glovebox in the Microgravity Science Lab aboard Columbia. At press time, landing was targeted for July 17 at KSC at about 6:53 a.m. EDT.

STS-85

Discovery (23rd flight)

Target launch date: 10:41 a.m. EDT, Aug. 7

Milestones: Terminal Countdown Demonstration Test, July 22-23; Flight Readiness Review, July 24.



Rollover: Discovery moves to the Vehicle Assembly Building July 7. Rollout to Pad 39A occurred one week later.

Shuttle-Mir



Progress vehicle arrives: Hardware and personal items arrived at Mir July 7 when a Progress resupply vehicle successfully docked with the station. Date for internal spacewalk to repair the damaged space station was not set at press time.

Spaceport News

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John F. Kennedy Space Center

Mars Pathfinder makes tough mission look easy

The successes which Mars Pathfinder continues to achieve make a difficult mission look easy. As geologists revel over the reams of high-quality data being gathered from the Ares Vallis landing site following Pathfinder's arrival on Mars July 4, it's worth noting the hurdles the spacecraft crossed en route to making history:

- The airbags that cushioned the lander's touchdown had never been used before on a U.S. mission;
- The lander entered the atmosphere at 16,600 miles per hour and touched down at a speed of about 22 mph;
- Pathfinder traveled a distance of 309 million miles to complete a high-risk entry sequence that lasted less than 5 minutes.
- Sojourner rover is the first robotic vehicle to explore the surface of another planet. The one-foot tall, 23-pound midget landcruiser was folded to just seven inches in height for the seven-month journey to Mars.



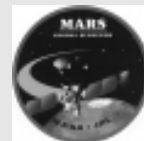
EXTRAORDINARY VISTA — The twin peaks on the horizon are about one mile from the Mars Pathfinder lander, renamed the Sagan Memorial Station in honor of astronomer Carl Sagan. The landing site is yielding a wealth of rocks and formations of great interest to geologists.



IT BEGAN AT KSC — The metal "petals" of the lander (left) are closed by Jet Propulsion Laboratory personnel in KSC's Spacecraft Assembly and Encapsulation Facility-2 Oct. 2, 1996. The rover is attached to one petal.

Still to come: Mars Global Surveyor

This Sept. 11, another NASA mission — Mars Global Surveyor — will arrive at the Red Planet. Circling Mars at an altitude of 235 miles, it will extensively map the Martian surface and collect atmospheric data.



NASA, Air Force may consolidate base support

Consolidated base support operations at KSC and the Cape could become a reality a little over a year from now.

KSC and the 45th Space Wing are seeking approval from their respective headquarters to combine U.S. Air Force and NASA base support operations at Kennedy, Cape Canaveral Air Station (CCAS), and Patrick Air Force Base.

The joint contract would combine the tasks in the existing KSC Base Operations

Contract held by EG&G Florida with those functions outlined in the Air Force Base Support Contract Request for Proposals (RFP) issued earlier this year.

KSC and 45th Space Wing officials say a combined support services contract would be competitively solicited, with performance to begin Oct. 1, 1998. The RFP for the contract could be issued as soon as March 1998.

Examples of services

covered under such a base support contract include

(See **CONTRACT**, Page 6)

A kitten's tale



See Page 2 to learn how KSC employees aided Pluto the kitten, who came from the Launch Complex 39 area.

KSC feral cat program needs homes and volunteers

Mr. No Ears, a beat-up old tomcat who lost his ears through years of fighting, was the first one caught. It was the day before New Year's, 1995.

More than 70 others have been trapped since then, including Otis, Sonny and Jazz, all fat and happy now in their new home on KSC.

Others, like Cosmo and Cleo who were just kittens when they were caught, are living contented, princely lives off-center with their satisfied owners.

These are the feral cats of KSC, and thanks to a group of dedicated KSC volunteers, they are being more humanely cared for through a management-approved effort to control the cat population in KSC's industrialized areas.

Feral cats have probably been here as long as the center itself. A feral cat is a domestic cat that grows up outside a home and becomes wild. Even though it looks like the typical housecat, a feral cat is afraid of humans, avoids contact with them and will defend itself if threatened.

The KSC feral cats can trace their origins back years ago to one or more callous workers who saw nothing wrong with dumping an unwanted housepet on a wildlife refuge.

Over the years, the population has increased in size. Until the volunteer group was formed, the practice at the space center called for sporadic trapping of the cats on a trouble call basis by Roads and Grounds. Such a policy was not effective in keeping the size of the cat population down, since one female cat can bear up to 22 kittens in her lifetime. While there has never been a known instance of a feral cat with

rabies, the animals can pose a nuisance in industrialized areas, finding their way into cable trays, creating a sanitation problem under trailers where they live, and frightening or annoying workers who don't want them around. The cats endure a brutal and short-lived existence, with the kittens easy prey for predators and food in constant short supply.

The employee volunteer effort began with the trapping of Mr. No Ears from the Launch



Zepo, LC 39 area

Complex 39 complexes in December 1995. Called the Space Cats Club, the program empowers the KSC work force to tackle a chronic problem in a humane and effective way.

Adults are taken to a relocation site on-center — where Mr. No Ears now lives — after being spayed or neutered and receiving a rabies shot.

If young enough — less than two to three months — kittens are cared for by volunteers who tame them and prepare them for adoption. About half the cats caught so far have been kittens (including those shown here). Whereas previously the kittens faced certain death, the volunteers have found homes for all of them.

Ferals that are domesticated become excellent housepets because their loyalty to their owner is so strong.

The Space Cats Club is solely funded and operated by its volunteer members, receiving a minimum of aid from KSC. It is currently seeking nonprofit status as well as permanent headquarters off-site.

The program applies only to the feral

cat population, not abandoned domestic housecats, which must be taken to a local animal shelter. It is a violation of an executive order to introduce a non-indigenous species on a federal wildlife refuge, and employees caught doing so are subject to disciplinary action.

Center Director Roy Bridges supports the Space Cats Club but no longer wants adult cats to remain on-center. Efforts are under way to find homes for the cats currently housed in the relocation site as well as adults trapped in the future.

Feral cats can be excellent "barn cats," adept at keeping rodent populations down and content to live in a setting relatively remote from human activity. Five cats have already found new homes in barns.

"This group of dedicated volunteers has succeeded beyond all expectation in sharply reducing the size of the feral cat population roaming free, while also providing a more humane existence for these animals," said Public Affairs Director Hugh Harris. "They have full management support as they continue their trapping and relocation program."

The Space Cats Club is seeking homes for both the adult cats and kittens. Contacts are as follows:

- **Kitten adoption**, Debi Cain, 861-7811, or Lisa Fowler, 867-2468;
- **Barn cat adoption**, Paula Shaw, 867-2814;
- **Space Cats Club volunteer information**, Kathleen Harer, 867-8035;
- **Monetary donations** can be made to the club's KSC Credit Union account, #3127831. To **donate supplies**, such as food, contact Carrie Parrish, 867-2780.



Tidbit, LC 39 area



Pluto, LC 39 area

July Employees of the Month



HONORED in July are (from left): Gwen Lewis, Administration Office; Erin Campbell, Chief Financial Officer's Office; Jack Massey, Procurement Office; Carolyn Paquette, Payload Processing; Dale Ceballos, Engineering Development; Chris Carlson, Space Station Hardware Integration Office; Diane Schultz, Safety and Mission Assurance; Jamie Palou, Shuttle Processing; Pauline Shook, Installation Operations; Tammy Hines, Biomedical Operations; and Cindy Kirkpatrick, Logistics Operations.

HBO in the O&C



Filming for the Home Box Office (HBO) network series, *From the Earth to the Moon*, included a scene shot in the Operations and Checkout Building featuring the Apollo 18 Lunar Module. HBO negotiated with the New York-based Museum Cradle of Aviation to feature the module in Episode 5 of the series, called *The 16-Ton Spider*. The module was shipped in several pieces. Its interior was completed before the Apollo program was cancelled, but the exterior was somewhat inaccurately completed by the museum. In its commitment to historical accuracy, HBO modified the exterior to specification. The interior bears the signatures of astronauts Fred Haise and Tom Stafford, who flew on Apollo 13 and 10, respectively. Episode 5 was written in part by Graham Yost, who also penned the scripts for such big-screen blockbusters as *Speed* and *Broken Arrow*. The episode focuses on the design and development of the Lunar Module.

Lockheed external tank plant gets new name

Lockheed Martin's Manned Space Systems in New Orleans, La., changed its name July 1 to better reflect the organization's expanded activities.

The new name is Lockheed Martin Michoud Space Systems.

"For many years, our only product was the Space Shuttle external tank ..." said Dennis Deel, president of Michoud Space Systems.

"Now, as we become involved in activities such as the X-33/Venture Star™ reusable launch vehicle, the A2100

satellite ... and other projects, it is appropriate that our company name reflect the diversity of our work."

The Michoud plant gets its name from Antoine Michoud, a Frenchman who operated a sugar cane plantation and refinery on the site in the 19th century. It was purchased by the U.S. government in 1940 at the outbreak of World War II. NASA took over the site in 1961 as the space race was heating up. Michoud was used for the design and development of the first stage of the Saturn booster.

KSC Visitor Center to host free country music concerts Aug. 2-3

Well-known country music acts Diamond Rio and Clay Walker will help celebrate the KSC Visitor Center's 30th anniversary with free concerts.

Diamond Rio will kick off the program with a concert Aug. 2, followed by Clay Walker Aug. 3.

Shows on both days are

scheduled to begin around 4:30 p.m. Employees and their families and guests are invited to bring a blanket and a chair to the Visitor Center Rocket Garden for the events.

Hitkicker Radio (WHKR 102.7) will be set up Aug. 3 with live broadcasting and promotional events.



AN EXTERNAL TANK is added to the Shuttle display at the Visitor Center. Guard Lee Inc., Apopka, which built the full-scale orbiter mockup exhibit at left, completed a refurbishment of the tank that culminated with a new paint job. The glossy surface helps keep dirt from getting trapped on the tank; its color is identical to the color of the new foam insulation after exposure to the sun for 60 days.

McCulley leaves KSC for Houston

United Space Alliance (USA) Ground Operations Vice President and Associate Program Manager Mike McCulley departed KSC after a seven-year stint to return to Houston to work with USA Program Manager Glenn Lunney, effective July 7.

Also departing KSC is USA Senior Consulting Engineer and space program veteran Horace Lamberth, who retired effective July 11.

Succeeding McCulley is Harry "Bud" Jupin, who was vice president of Safety and Mission Assurance at USA Headquarters in Houston.

Jupin joined USA-Houston in April 1996, having previously served for three years as chief operating officer of the World Resources Company. He is a retired Navy captain who has a bachelor's degree in



MIKE McCulley (left) chats with space program veterans Marty Cioffele and Horace Lamberth (right) at a farewell party June 19.

chemistry from Muskingum College, Concord, Ohio, and a master's degree in aeronautical engineering from the Naval Postgraduate School, Monterey, Calif. He has flown 31 different types of aircraft, logging some 6,000 flight hours. He was twice selected as a Navy finalist in the astronaut selection press.

McCulley is a former astronaut who served as pilot on Mission STS-34.

ISO 9001 is part of the BIG picture

By Susan Maurer

Most NASA employees and contractors have heard of the drive for ISO 9001 compliance, but what does ISO mean and how does it impact workers at KSC?

According to Laura Gosper, chief of the newly formed Business Innovation Group (BIG), ISO 9001 is only part of a requirement to develop a smarter long-term business system for the center.

"ISO 9001 is simply a model for KSC to satisfy a minimum level of quality requirements," Gosper said. "In other words, compliance with the ISO 9001 standard is the start of the journey, not the ultimate goal. It will enhance rather than replace NASA's current management system."

The International Organization for Standardization (ISO) is a federation of national standards bodies from some 120 countries. 'ISO' represents a set of standards to define how organizations develop their management systems.

The organization has many series of standards that refer to different activities, such as film speed (ISO 400). The format of credit cards and phone cards are derived from an ISO international standard so they can be used worldwide.

ISO 9000 is the series that refers to business systems, and ISO 9001 is the most detailed, comprehensive set of standards in the ISO 9000 series. It is used when the supplier

must ensure conformity throughout the entire product cycle — from design to final inspection and testing.

"We're shooting for compliance with the ISO 9001 standard in particular because we do design, verification and validation," said Jim Lichtenthal, Business Innovation Group documentation manager. "Eventually, we'll be taking the words 'ISO 9000' off of our documentation because it's really just a standard we'll follow to develop our business management system. ISO 9000 is not a product-oriented specification, rather it is a process-oriented flexible set of controls required to build and maintain a good business management system."



That is, in fact, the mission of the BIG team. The group's name was changed in April 1997 from the ISO Project Office to the Business Innovation Group when Center Director Roy Bridges integrated continual improvement, implementation planning, metrics, and benchmarking into the group's direction.

The NASA quest to become ISO 9001-compliant originated in a similar vein. Seeking to become the "pre-eminent" federal agency for quality management, NASA Headquarters ordered all of its centers to attain ISO 9001 registration by Sept. 30, 1999. In a Nov. 13, 1996 memorandum, Administrator Daniel

Goldin said he also expects NASA contractors to "step up to the challenge" as well. If successful, NASA will be the first federal agency to attain organization-wide registration.

"One of the keys to ISO is to document what you do — and then do what you document," noted Gosper. "The ISO 9001-compliant system begins with an organization's business manual. This manual states the organization's philosophy and vision and represents a plan for the business system. Other levels of documentation include procedures and work instructions — how and what you do — as well as records, which are evidence that you've done it."

"We intend to seek certification to ISO 9001, but in order to do that, we at KSC are developing a business management system that will last well into the future," she added.

According to Gosper, BIG has taken a hard look at KSC operations and the ISO 9001 standards to marry the two and make a Business System Manual. "The manual defines our objectives as a center and how we intend to conduct business so that we work smarter, not harder," she said.

Lichtenthal added that when KSC has its business system defined, all major processes performed by KSC NASA employees will be posted on the Web at a site currently referred to as 'Business World.' There, NASA and contractor employees will be able to access most NASA

What's in a name?

If the official ISO agency is the International Organization for Standardization, why isn't the acronym *IOS* instead of *ISO*? In fact, *ISO* is a word derived from the Greek term *isos*. It means *equal*, which is the root of the prefix *iso-* that occurs in a host of terms, such as *isometric*, meaning of equal measure or dimensions, and *isomorph*, meaning equal in form or structure. The term *ISO* thus also has the advantage of being valid in each of the organization's three official languages: English, French and Russian.

processes and forms to get a view of the big picture.

"Right now, it's part of the ISO 9000 page," said Lichtenthal, "but that will change to better reflect the business system as we get closer to final development." (KSC's ISO page is located at <http://iso9000.ksc.nasa.gov/> and the Business Manual can be accessed through here also.)

Lichtenthal noted that other information that people need and use to do their jobs may be introduced into the Business World environment, such as organization charts and reference documents.

Certification is valid for three years and requires periodic audits. "It's akin to seeking a college degree," suggested Gosper. "You can take all the courses and pass, but you really need your diploma to demonstrate that you've made the grade. And once you graduate, you need to continually prove your ability to perform well."

"We are leaders in the world of science and technology. We must also be leaders in the world of quality. To this end, I am requiring that the Agency be third-party certified in our key processes, by an internationally recognized registrar, to ISO 9001. This commitment applies to all Centers and Headquarters. I am also expecting that all our suppliers will step up to this challenge. The Marshall Space Flight Center, Johnson Space Center, and Stennis Space Center should be certified no later than April 1998. The remaining NASA Centers and Headquarters should be certified no later than Sept. 30, 1999."

— NASA Administrator Daniel S. Goldin in a Nov. 13, 1996 memorandum distributed agencywide.

Historic ship retired after 52 years of service



After 52 years of service, the U.S. Navy Ship *Range Sentinel* was deactivated during a ceremony July 9 at Port Canaveral. The ship's history dates back to World War II. It was present in Tokyo Bay on Sept. 2, 1945, for the Japanese surrender. At that time the vessel was called the *USS Sherburne*. During its second extended period of service as the *USS Range Sentinel*, which began in 1971, she supported and tracked 509 Polaris, Poseidon and Trident test missiles launched from both Launch Complex 46 and submarines operating off the Florida coast. She completed her final mission May 30. The ship's crew was unusual in that they were civil service employees under the Military Sealift Command, and the captain of the vessel was called a Master.

Hurricane Awareness

Peak hurricane season is mid-August through late October.



KSC enters new training era with Internet-based coursework

By Chuck Weirauch

New KSC-developed training programs that eliminate the cost of traditional classroom-based courses while offering students an effective learning tool are available to NASA through the Internet.

"Our Web Interactive Training (WIT) courses represent a new approach to on-the-job training," said NASA/KSC Project Manager David Collins. "These are state-of-the-art multimedia training classes that can be accessed through the Internet while the employee is at work."

The first two WIT courses are Nondestructive Evaluation (NDE) and Statistical Process Control. The subjects were chosen since KSC is the NASA Training Center of Excellence for NDE disciplines. The courses were produced by the I-NET Inc., Multimedia Laboratory at KSC for the Safety and Mission Assurance Directorate.

The concept of technical training through the Internet was developed in response to the need for the training of more NASA employees in the NDE field as their responsibilities transition more to the roles of quality assurance. Another reason was to reduce the cost of training.

"Our goal was to do more with less," Collins said. "The WIT courses will save travel time and expense, as well as the physical costs of conducting the class and employee downtime. We expect that the courses will pay for themselves within two or three years."

In the traditional week-long NDE classroom training course at KSC, only a limited number of people can attend. Instructors scheduled for classes must take time away from their primary jobs and students have little time to train with actual equipment.

A student accessing the Internet NDE



ACTING I-NET MULTIMEDIA LEAD Tom Brubaker demonstrates the newly available multimedia-based courses available to NASA employees through the Internet.

course can watch a brief video on radiography at KSC and learn the basic concepts through text, photos, graphics and animation. The student can interact with a simulated computed tomography (CT) scanner to find a possible defect in Shuttle hardware or ground support equipment. If a student has questions, he or she can send these queries to a designated expert who will provide answers via e-mail.

"The two courses result from extensive research of interactive curricula available on computer CD-ROM disks and the Internet, as well as a study of types of teaching concepts," said Multimedia Lab lead David Metcalf.

"We have combined the most effective teaching methods along with text, graphics, audio, movies and animation into self-paced, interactive learning modules."

The goal is to make the module content accessible through all Web browser versions and both Macintosh and PC-compatible computers, Metcalf said.

Each unit within NDE consists of a video introduction; text, graphics, photos, and animations explaining theory and applications; interactive simulations; and

a quiz randomly generated from a database of questions. The quiz tests comprehension and reinforces learning. Each quiz is automatically scored, providing immediate and positive feedback.

"The tests give students the tools to measure performance while they are learning," Collins said. "They also give the means to see how effective the courses are in providing the information the employees need to do their jobs well."

Many users have reported that they are pleased with the new learning tool, as have managers and training staff at KSC and other NASA centers, Collins said.

Such positive feedback about the courses is expected to increase once they are offered through an agency-wide training program that is a part of the NASA Professional Development Initiative in the Quality and Safety Environment, said Randy Tilley, manager of the WIT program for the Engineering Development Directorate.

"This type of interactive training is what we need to help NASA employees learn new skills as they move out of the hands-on work they are accustomed to and assume more responsibilities in the quality and safety arenas," said Tilley.

"We plan on developing WIT classes for several other disciplines that are critical to the success of the Shuttle program at KSC in the future," Collins added.

NASA employees interested in the interactive training program can find more information on the World Wide Web at: <http://wit.ksc.nasa.gov/>

Or contact Tom Brubaker, acting I-NET Multimedia Lab lead, at 867-2634.



Cassini comes together

JET PROPULSION LAB workers are installing the back shield on the Huygens probe (cone-shaped structure in workstand at left), in KSC's Payload Hazardous Servicing Facility. At right in the background is the Cassini orbiter, to which the probe will be attached. Cassini represents the second orbiter/probe-type mission, following the 1989 Galileo mission to Jupiter.



Contract. . .

(Continued from Page 1)

facility operations and maintenance, security, fire protection, and roads and grounds maintenance.

The streamlining effort is an offshoot of the NASA/Air Force Space Command Partnership Council, which was established through a Memorandum of Agreement (MOA) signed Feb. 28 this year. One of its key features is to identify areas where increased sharing or consolidation of activities can improve support services to civil, military and commercial customers, while producing cost savings for both the Air Force and NASA. These savings can in turn be passed on to launch customers.

"Eliminating duplication of services and pooling resources to support these federal facilities located so close to each other will result in both better service for the launch customer and savings for the American taxpayer," said KSC Procurement Director Jim Hattaway.

Once both Headquarters' approvals are given, the Air Force and NASA would immediately establish a joint Procurement Development Team to define the unified

requirements of the three locations and to conduct the competition.

Joint contracts or agreements between NASA and the Air Force are not unprecedented, although none are on such a scale as the proposed base support services consolidation. For example, the 45th Space Wing provides photographic services and support for KSC, while KSC provides the wing with propellant services.

EG&G has served as the KSC Base Operations Contractor (BOC) since 1982, when 13 different contracts were consolidated. The Wellesley, Mass., based-company continued as the BOC when the contract was recompeted in 1993.

EG&G has been in the process of converting to a fixed price contract that would have gone into effect Oct. 1. That effort is being suspended — as is the Air Force RFP — pending approval of the consolidation.

Should a decision be made to consolidate, NASA and EG&G will restructure the upcoming BOC two-year option that would begin Oct. 1.

The restructured option would provide for an initial period extending through Sept.

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— KSC Procurement Director Jim Hattaway

30, 1998 — the end of the fiscal year. This also would keep the KSC BOC timeline in step with the consolidated contract targeted to begin Oct. 1.

Twelve additional one-month options would also be included in the restructured option should the consolidation effort take longer than anticipated to implement.

"We understand and sup-

port the objectives that NASA and the Air Force are pursuing," said EG&G Florida General Manager Dick Jolley.

"Based on their 1998 schedule we basically have two things to accomplish. First, we will continue the work we are under contract to do. Second, we will begin the process leading to submitting a proposal for a combined NASA/Air Force contract."



John F. Kennedy Space Center

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Managing editor. Bruce Buckingham

Editor. Paula Shawa

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